What is claimed is:

1. A fuel cell system comprising:

a fuel cell working to produce an electrical energy arising from chemical reaction of hydrogen with oxygen;

a hydrogen supply line supplying a hydrogen gas from a hydrogen supply device to said fuel cell;

an off-gas recirculating line extending from said fuel cell to said hydrogen supply line;

an off-gas recirculating mechanism designed to recirculate an off-gas, which is discharged from said fuel cell and includes hydrogen having unreacted with the oxygen in the chemical reaction, to said fuel cell through said off-gas recirculating line, said off-gas recircualting mechanism being designed to be controllable of an amount of the off-gas recirculated, working to mix the off-gas flowing through said off-gas recirculating line with the hydrogen gas flowing through said hydrogen supply line to output a mixture gas to said fuel cell;

an output demand determining circuit working to determine a demand for output of the electrical energy from said fuel cell; and

a controller working to control the amount of the off-gas recirculated through said off-gas recirculating mechanism as a function of the demand for output of the electrical energy determined by said output demand determining circuit, thereby controlling an output pressure of said off-gas recirculating mechanism.

2. A fuel cell system as set forth in claim 1, further comprising a pressure sensor working to measure the output pressure of said off-gas recirculating mechanism, and wherein said control circuit controls the amount of the off-gas recirculated as a function of the output pressure measured by said pressure sensor.

3. A fuel cell system as set forth in claim 1, wherein said controller monitors the output pressure of said off-gas recirculating mechanism to control the amount of the off-gas recirculated through said off-gas recirculating mechanism so as to bring the output pressure of said off-gas recirculating mechanism into agreement with a target one under feedback control.

4. A fuel cell system as set forth in claim 1, wherein said ontroller monitors the output pressure of said off-gas recirculating mechanism to control the amount of the off-gas recirculated through said off-gas recirculating mechanism so as to have the output pressure of said off-gas recirculating mechanism fall within a target range under feedback control.

5. A fuel cell system as set forth in claim 4, wherein when the output pressure of said off-gas recirculating mechanism lies within the target range, and an actual amount of the electrical energy produced by said fuel cell is smaller than the demand for output of the electrical energy from said fuel cell, said controller drains the

off-gas from said off-gas recirculating line.

6. A fuel cell system as set forth in claim 1, wherein said off-gas recirculating mechanism is implemented by an ejector vacuum pump which includes a nozzle having an outlet from which the hydrogen gas is discharged and is so designed as to be controllable of an area of the outlet of the nozzle.

7. A fuel cell system as set forth in claim 6, wherein said ejector vacuum pump has a tapered needle disposed within the nozzle coaxially therewith to be movable selectively in a first direction in which the tapered needle approaches the outlet of the nozzle and in a second direction in which the tapered needle moves away from the outlet of the nozzle, thereby changing the area of the outlet of the nozzle.

8. A fuel cell system as set forth in claim 7, further comprising an actuator which is electrically operable to move the tapered needle in a selected one of the first and second directions.

9. A fuel cell system as set forth in claim 1, further comprising a heater working to heat said off-gas recirculating mechanism.

10. A fuel cell system as set forth in claim 9, wherein said heater is so installed as to extend from the outlet of the nozzle ranging downwardly of a flow of the hydrogen gas.

11. A fuel cell system as set forth in claim 9, wherein said heater is implemented by a PTC heater.

12. A fuel cell system as set forth in claim 1, further comprising a hydrogen supply pressure regulating mechanism working to regulate a pressure of the hydrogen gas outputted from said hydrogen supply device.

13. A fuel cell system comprising:

a fuel cell working to produce an electrical energy arising from chemical reaction of hydrogen with oxygen;

a hydrogen supply line supplying a hydrogen gas from a hydrogen supply device to said fuel cell;

an off-gas recirculating line extending from said fuel cell to said hydrogen supply line; and

an off-gas recirculating mechanism designed to recirculate an off-gas, which is discharged from said fuel cell and includes hydrogen having unreacted with the oxygen in the chemical reaction, to said fuel cell through said off-gas recirculating line, said off-gas recircualting mechanism working to mix the off-gas flowing through said off-gas recirculating line with the hydrogen gas flowing through said hydrogen supply line to output a mixture gas to said fuel cell, said off-gas recirculating mechanism being responsive to a pressure of the mixture gas outputted from said off-gas recirculating mechanism to bring the pressure of the mixture gas into agreement

with a target one.

14. A fuel cell system as set forth in claim 13, wherein said off-gas recirculating mechanism is implemented by an ejector vacuum pump which includes a nozzle having an outlet from which the hydrogen gas is discharged and is so designed as to be variable of an area of the outlet of the nozzle in response to the pressure of the mixture.

15. A fuel cell system as set forth in claim 14, wherein said ejector vacuum pump has a tapered needle disposed within the nozzle coaxially therewith to be movable selectively in a first direction in which the tapered needle approaches the outlet of the nozzle and in a second direction in which the tapered needle moves away from the outlet of the nozzle, thereby changing the area of the outlet of the nozzle.

16. A fuel cell system as set forth in claim 15, wherein said ejector vacuum pump has an elastic actuator which is elastically responsive to the pressure of the mixture to move the tapered needle in a selected one of the first and second directions.

17. A fuel cell system as set forth in claim 16, wherein the elastic actuator is implemented by a spring.